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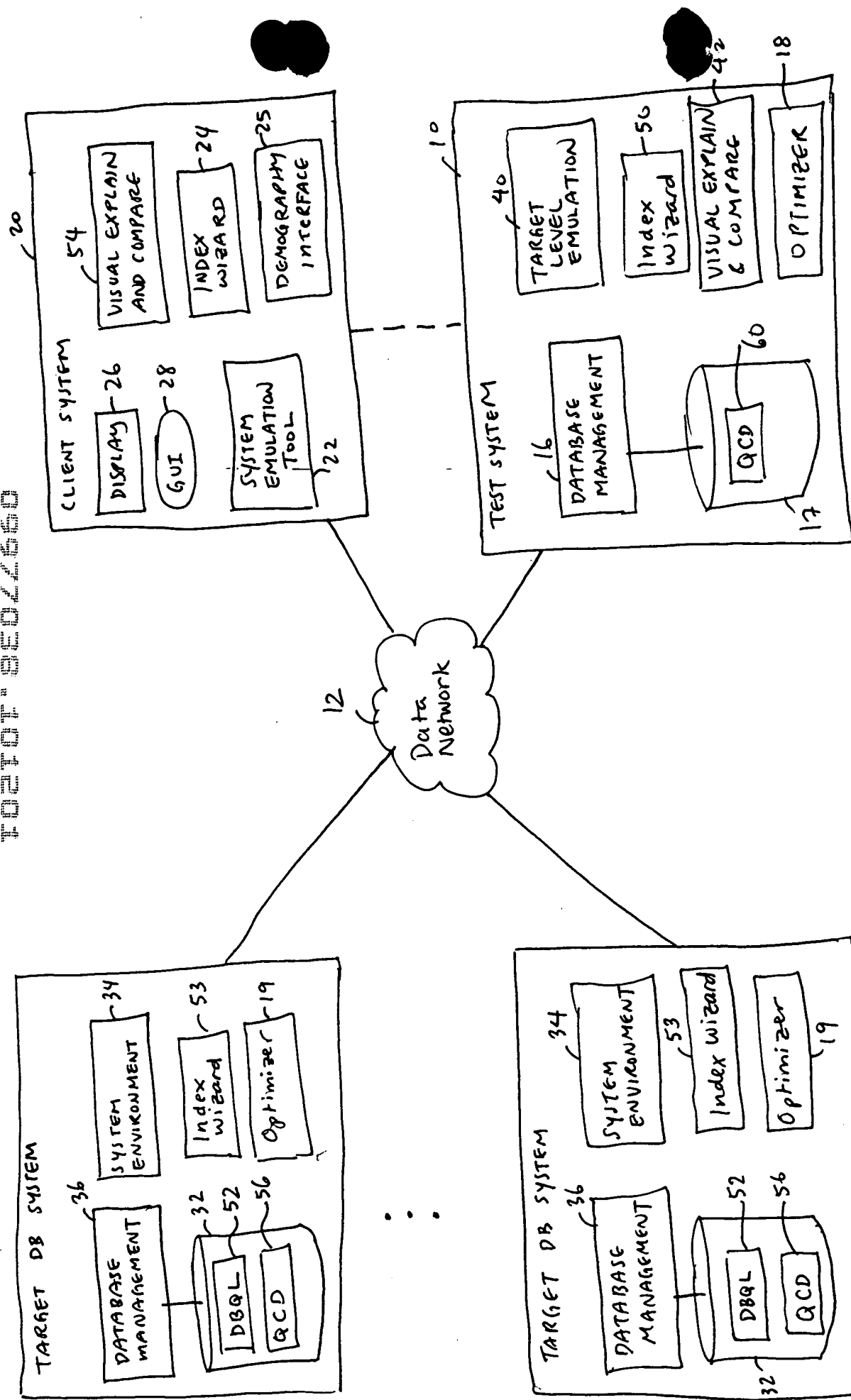


FIG. 1

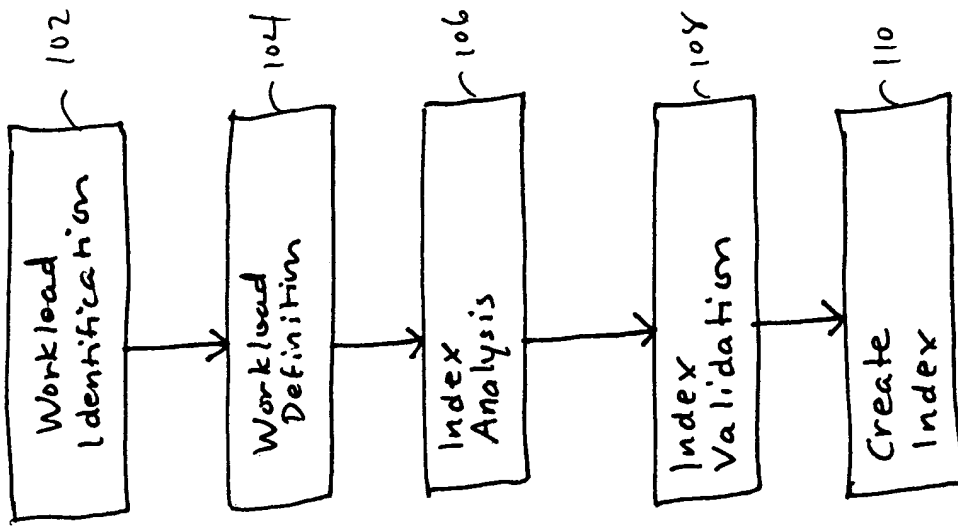


FIG. 2

0957038-104204

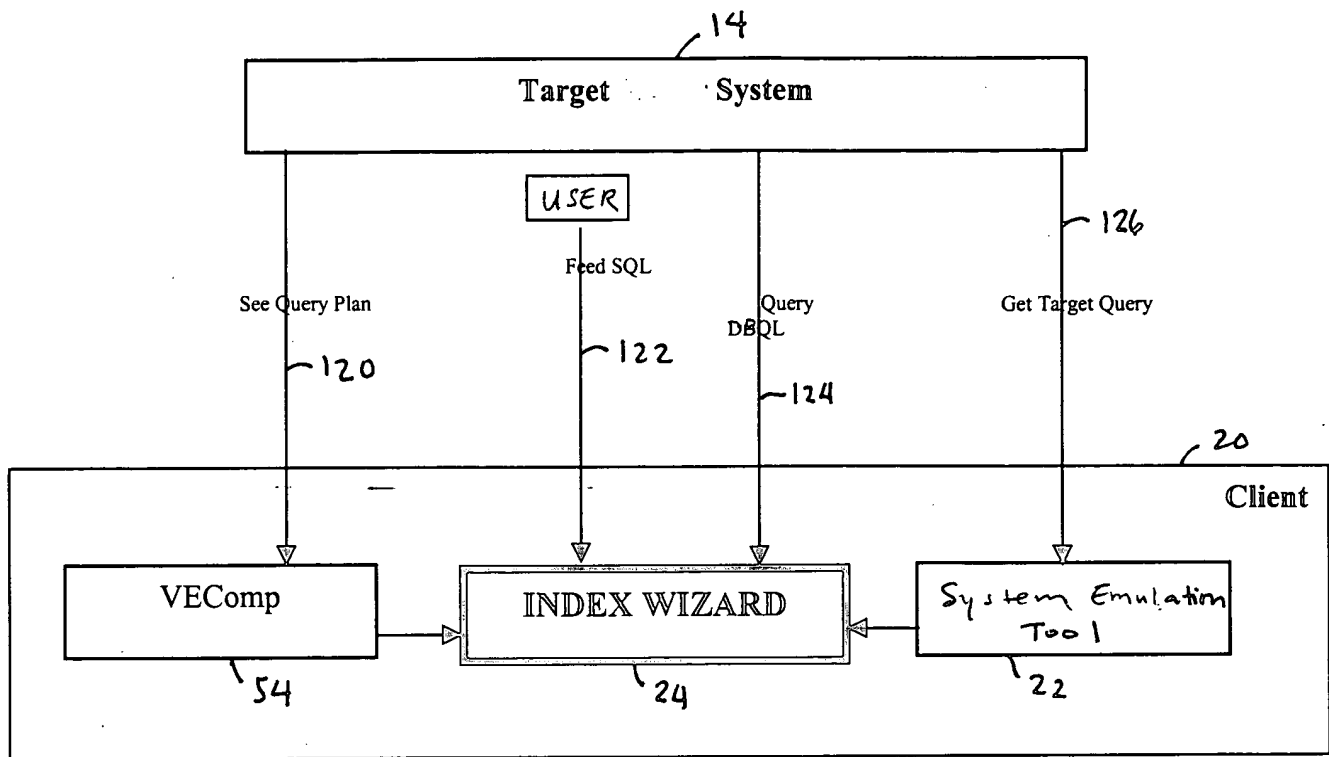


FIG. 3

0997038-404204

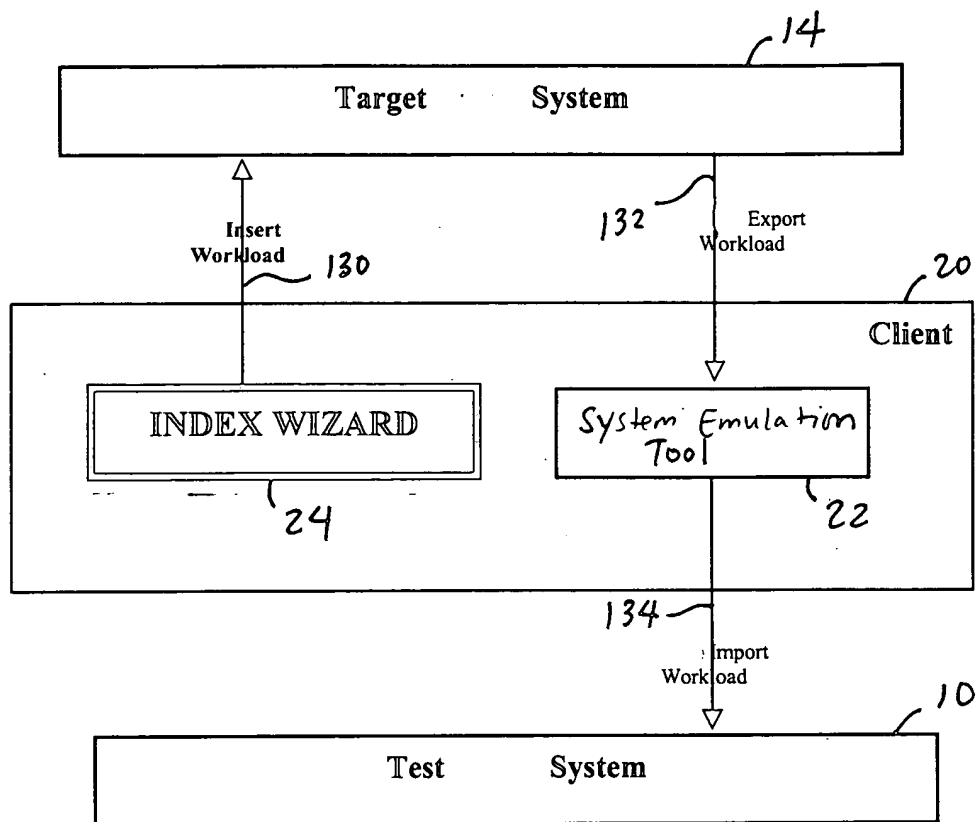
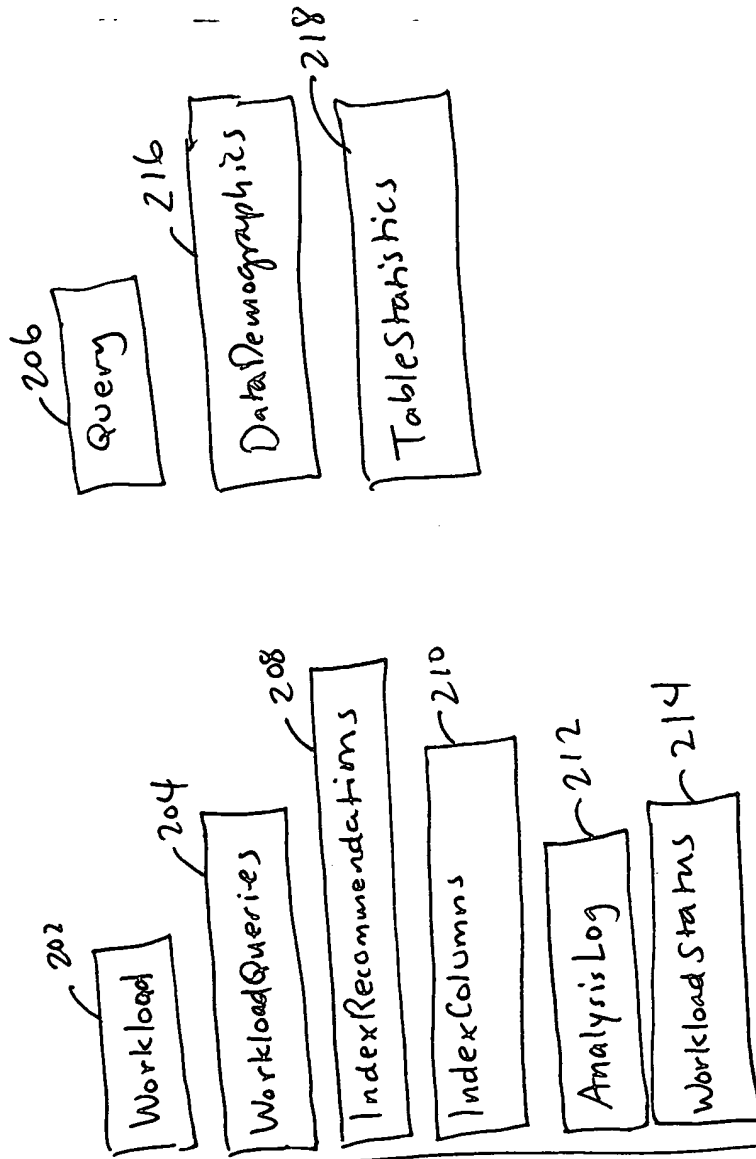


FIG. 4

QCD 56 OR 60



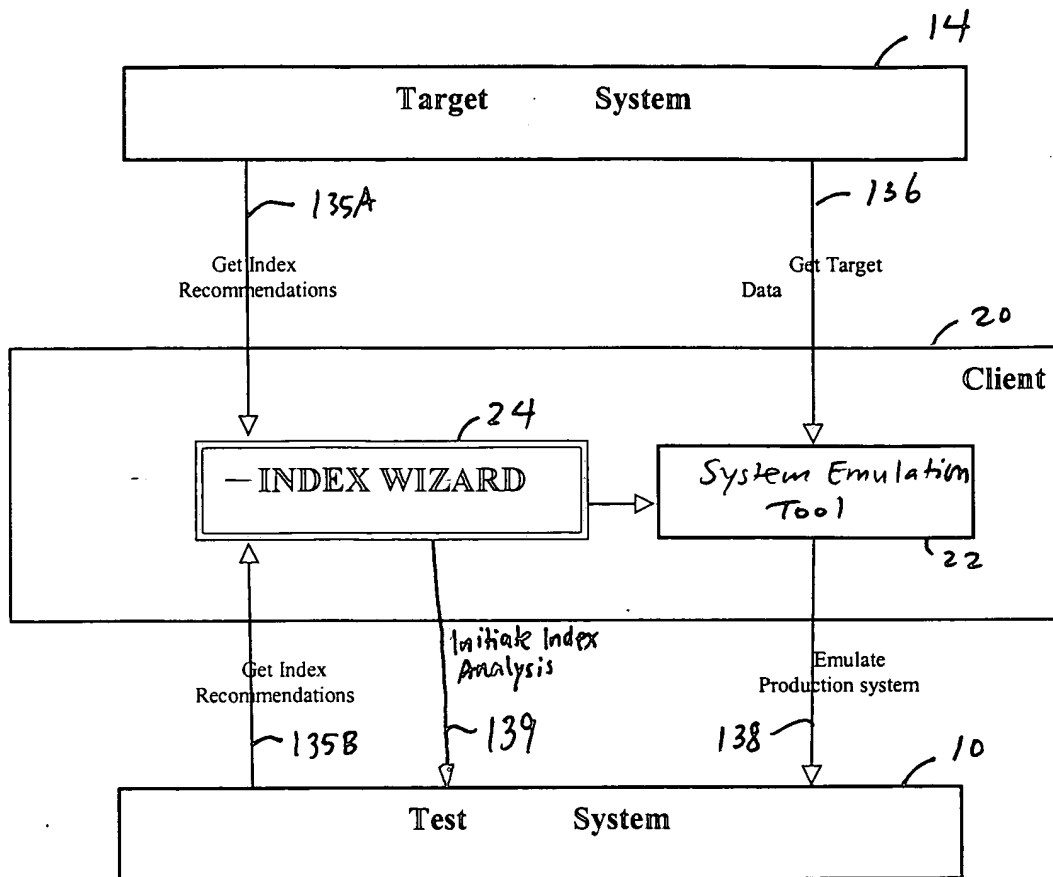
[illegible]

FIG. 6

0997038-101201

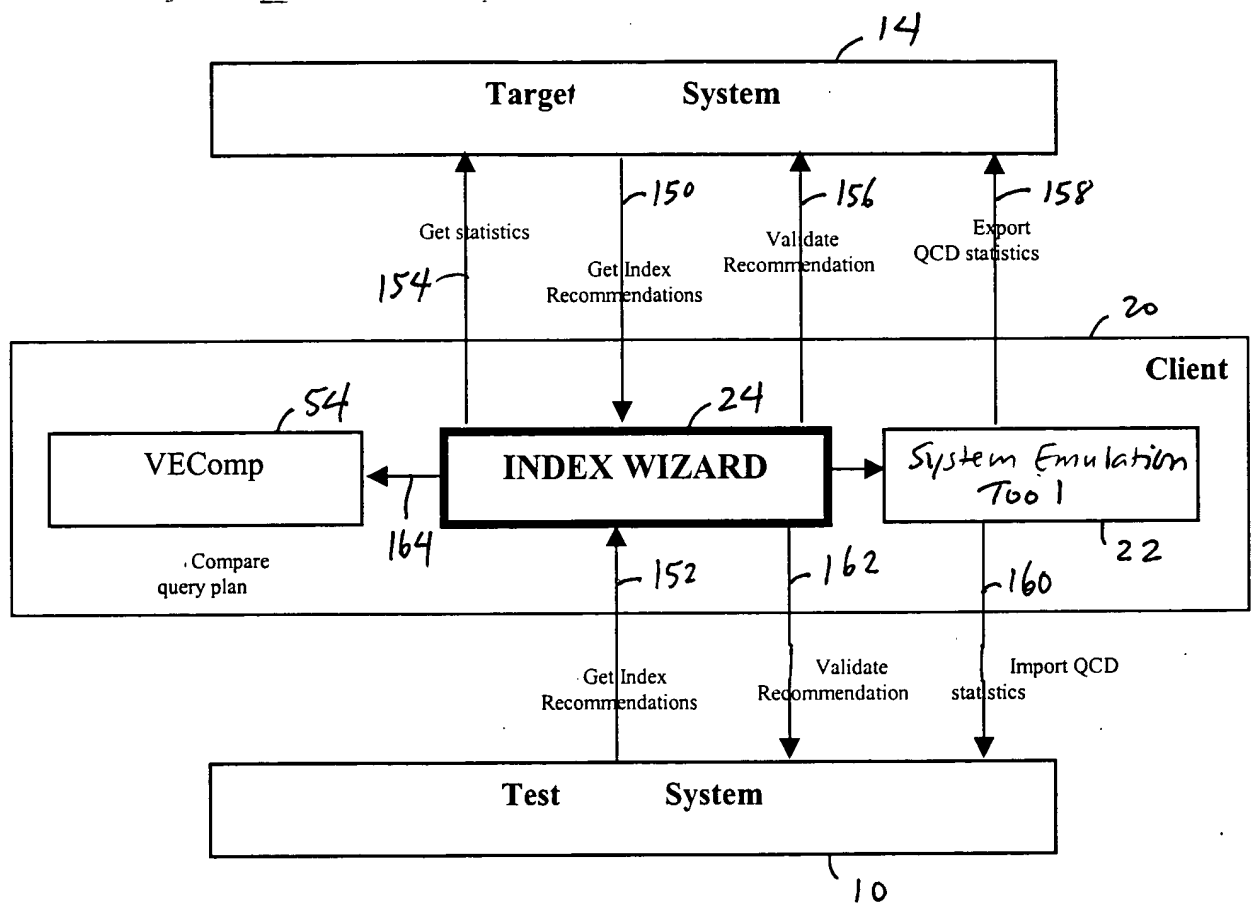


FIG. 7

09977038-101201

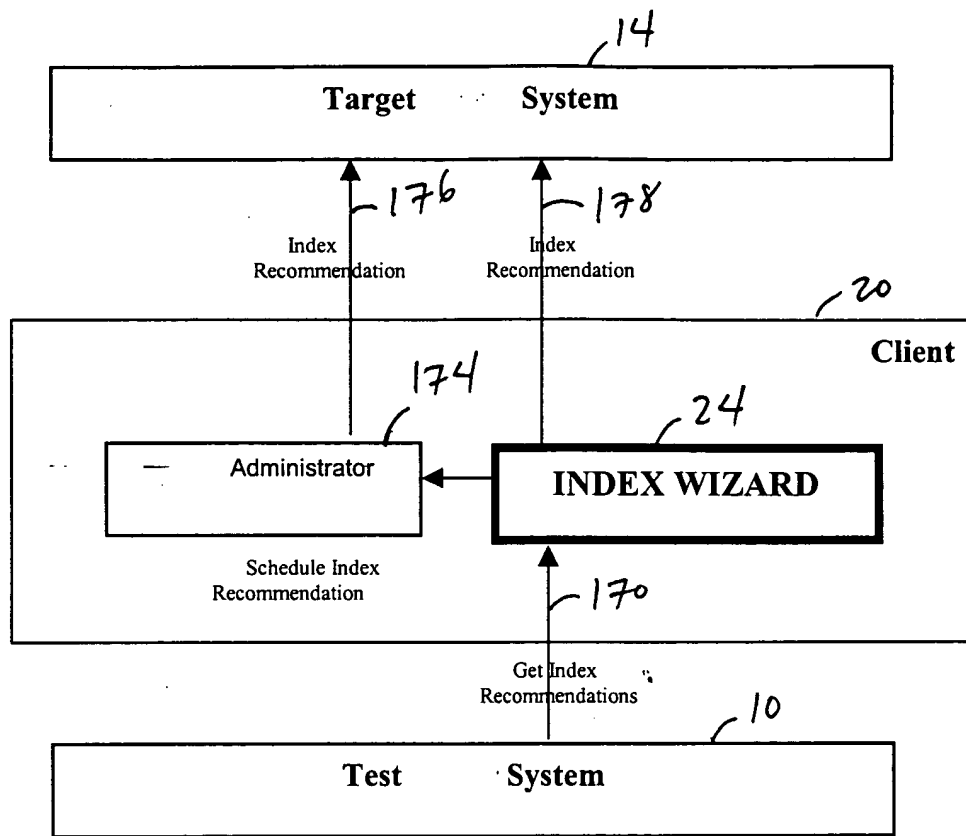


FIG. 8

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Predicate Analyzer 316

Optimizer 18

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Index Search Engine 320

INTERCONNECT LAYER

Access Module 322

Access Module 322

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Access Module 322

324

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324

FIG. 9

TD2707" 8E022659

400

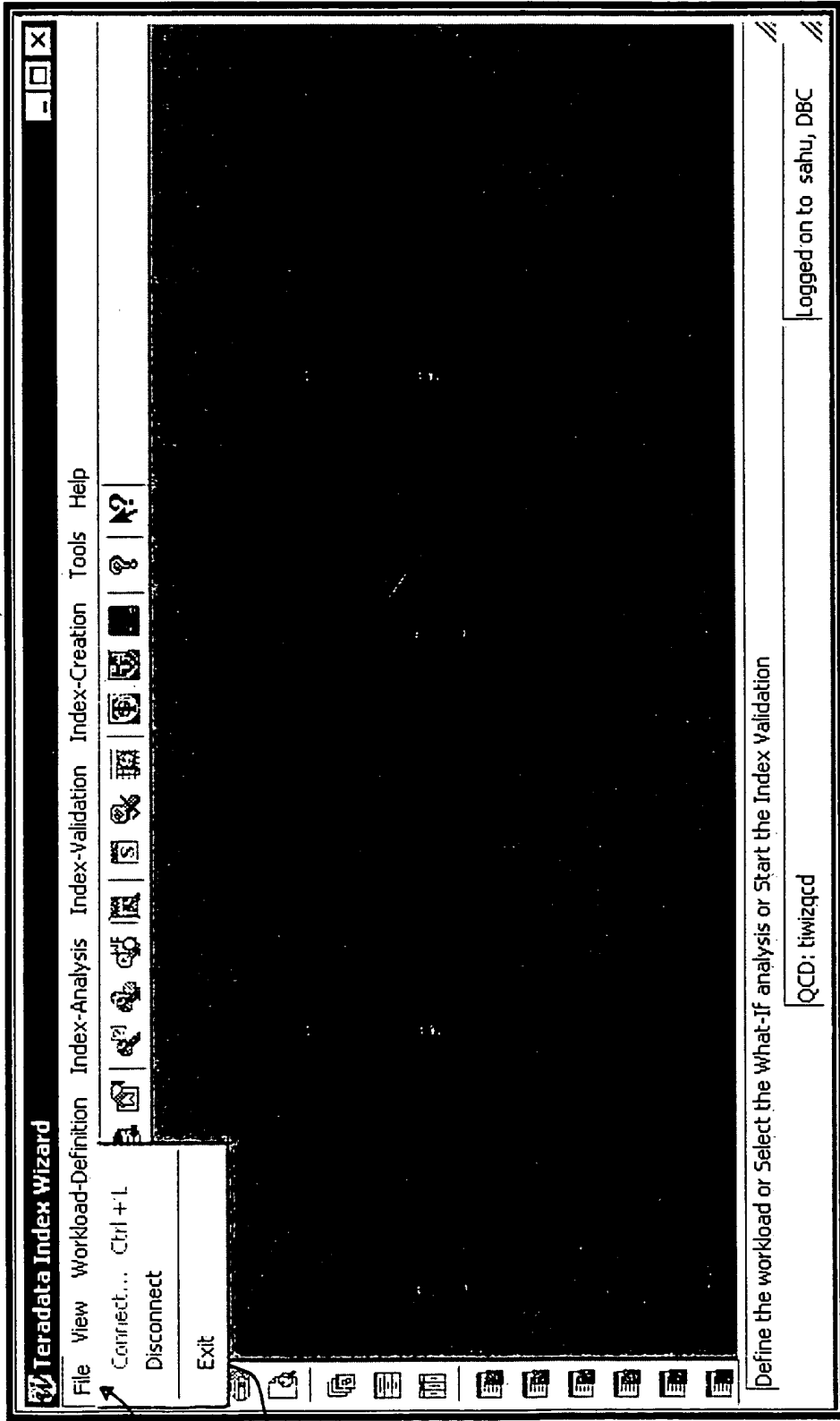
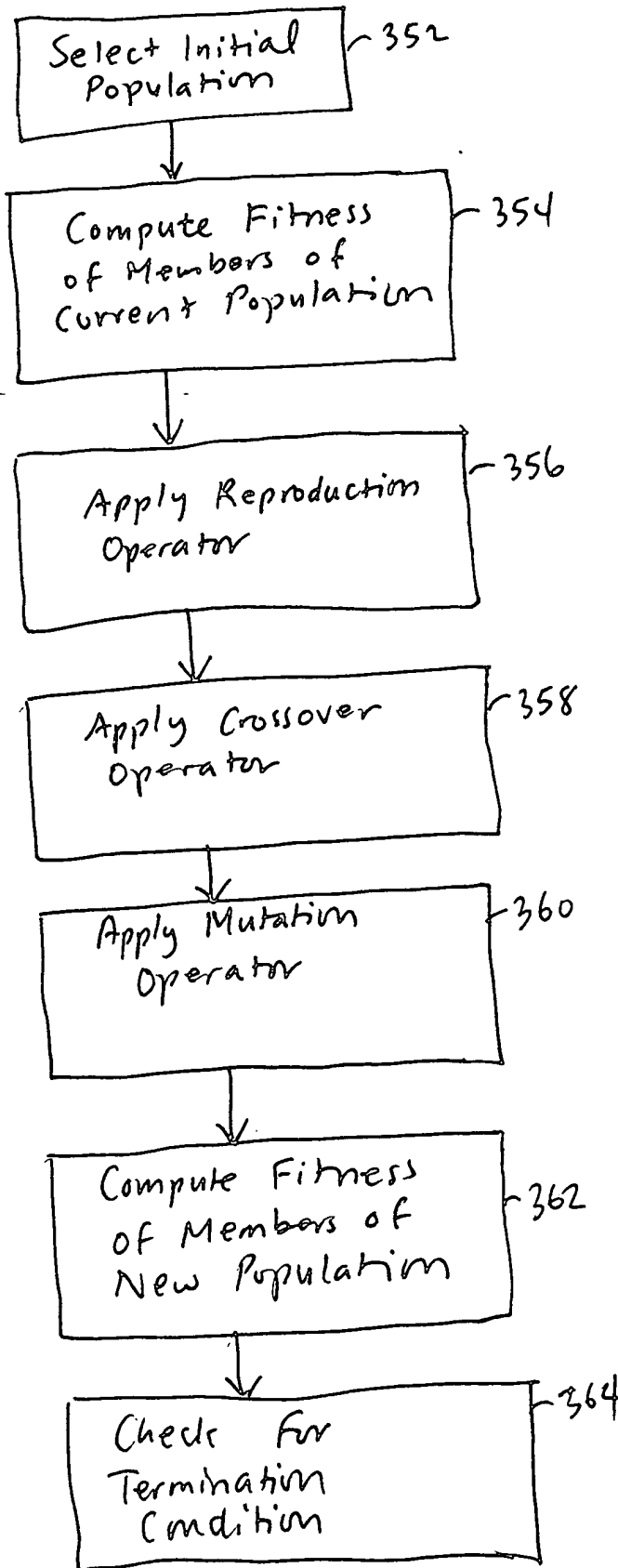


FIG. 13

FIG. 10



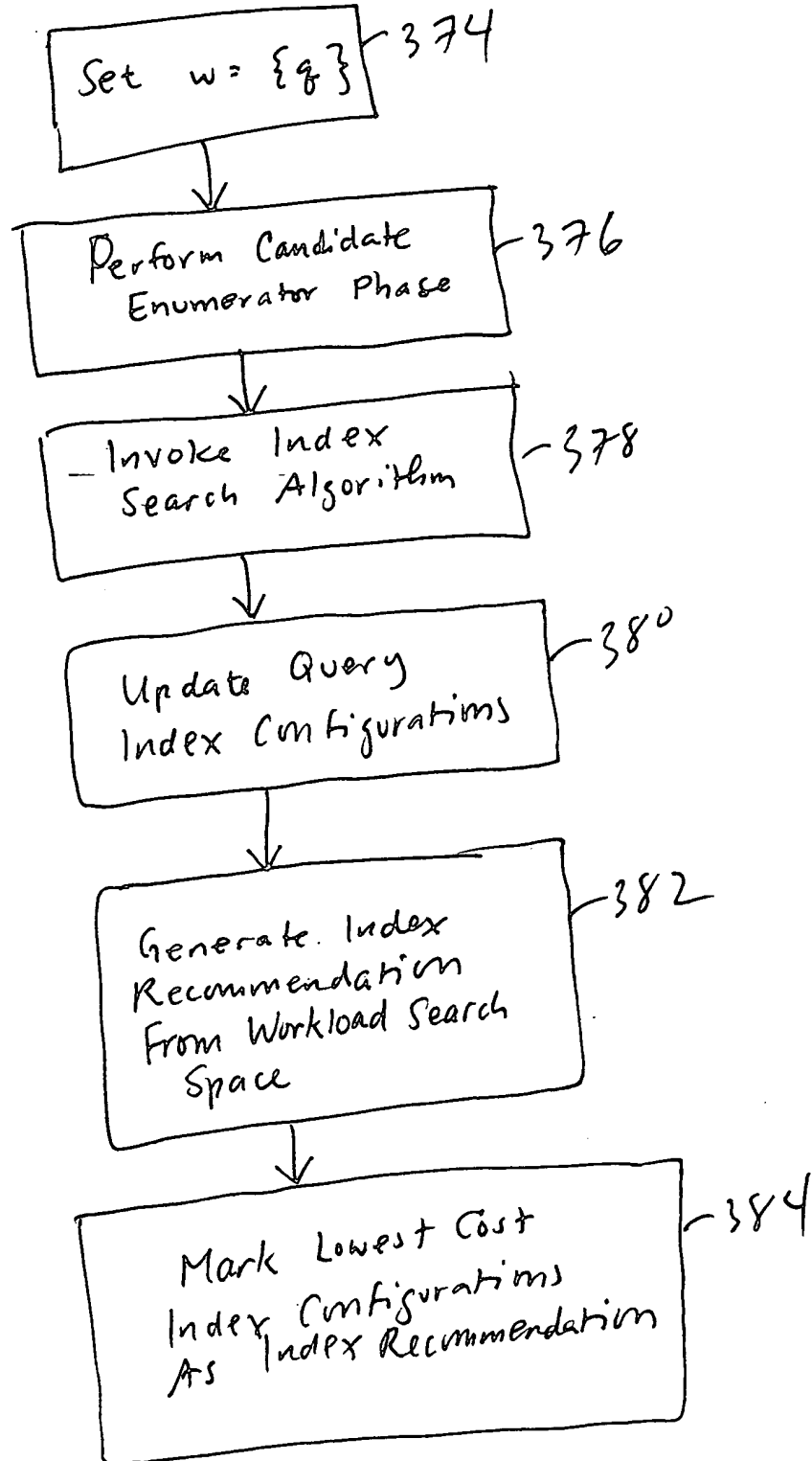


FIG. 11

09977038-10100

400

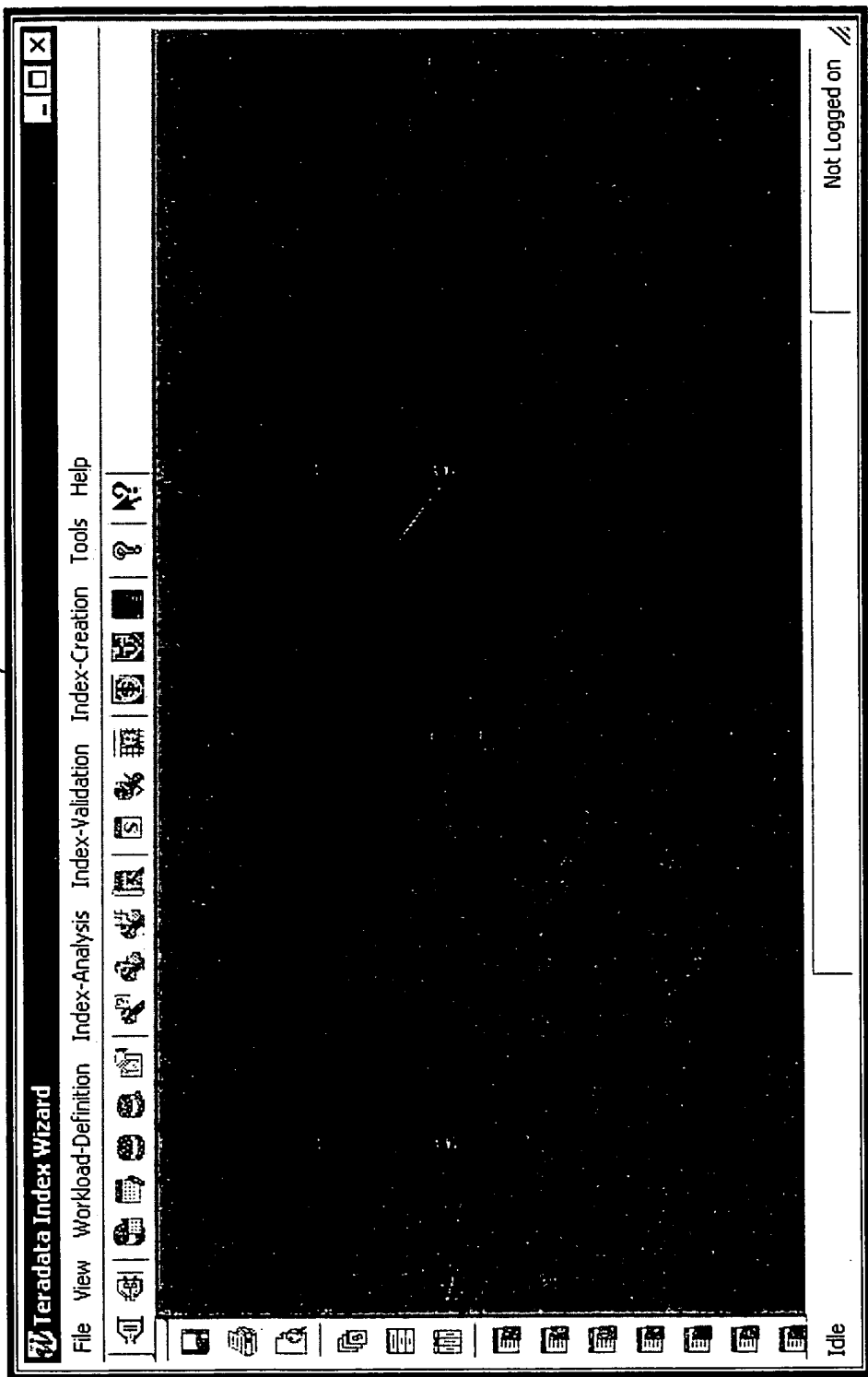


FIG. 12

T02T0T" BEOZL650

400

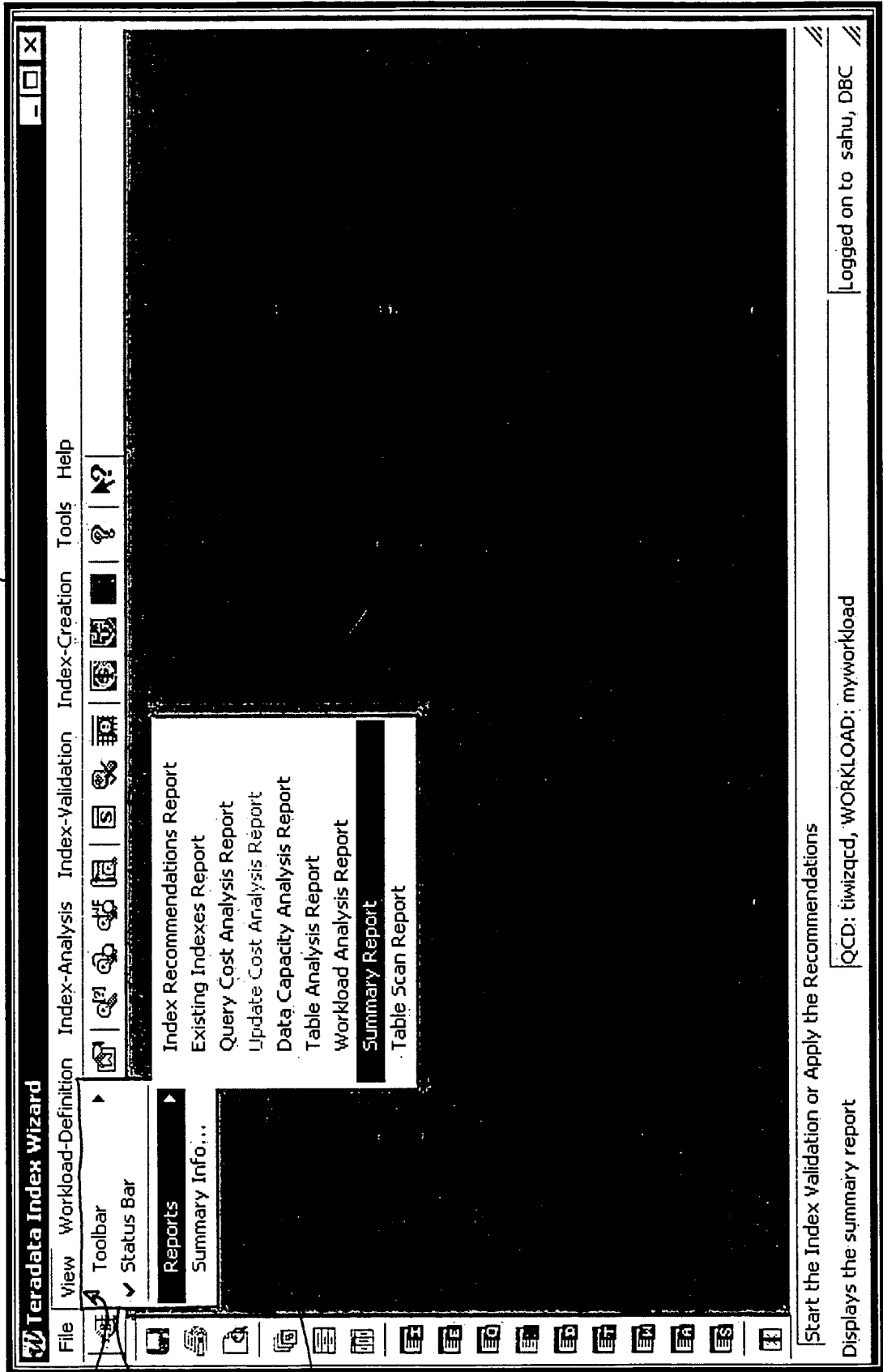
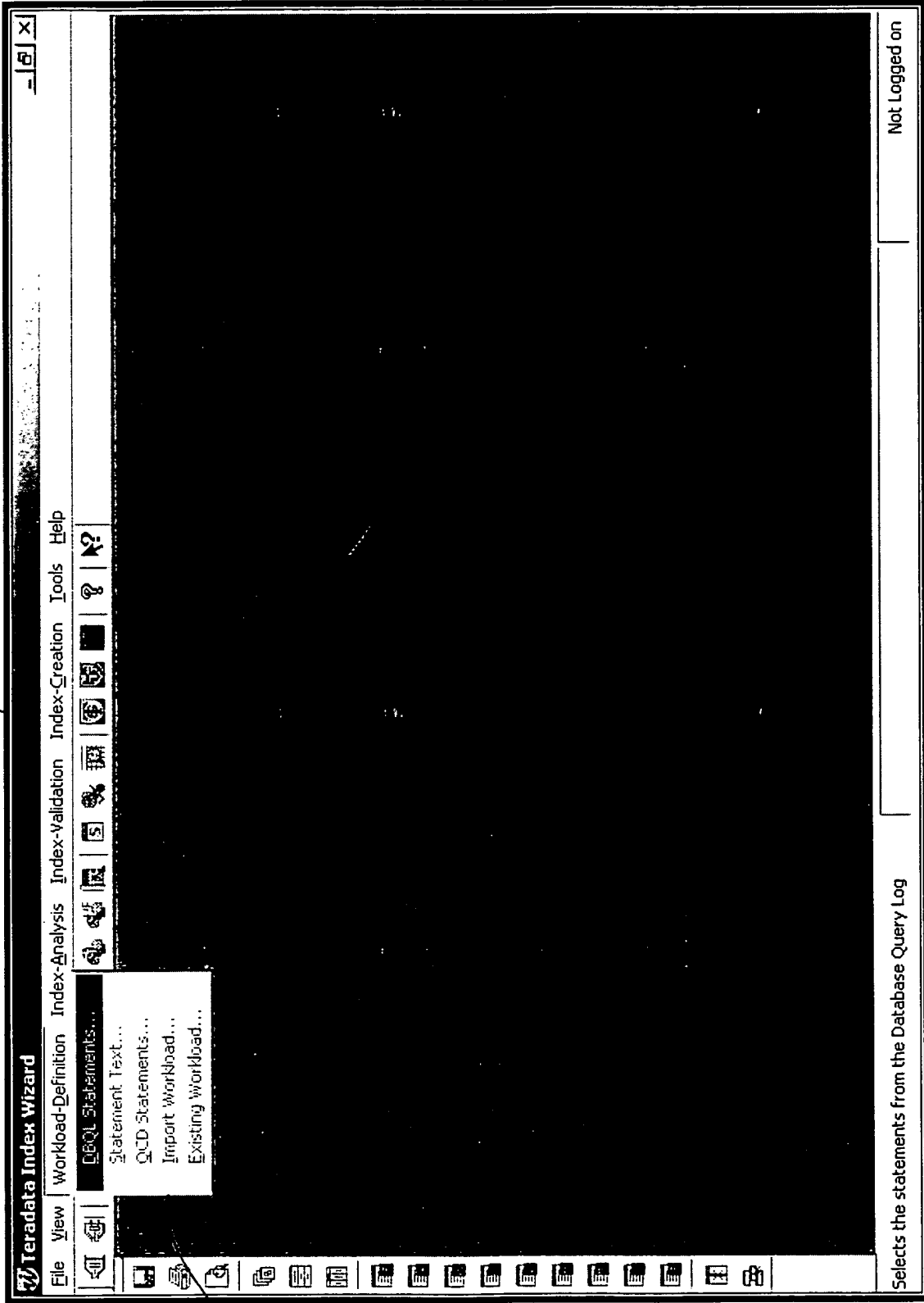


Fig. 14

09977038-104204

420

406



422

Fig. 15

T02T0T"8E0/4560

432

430

400

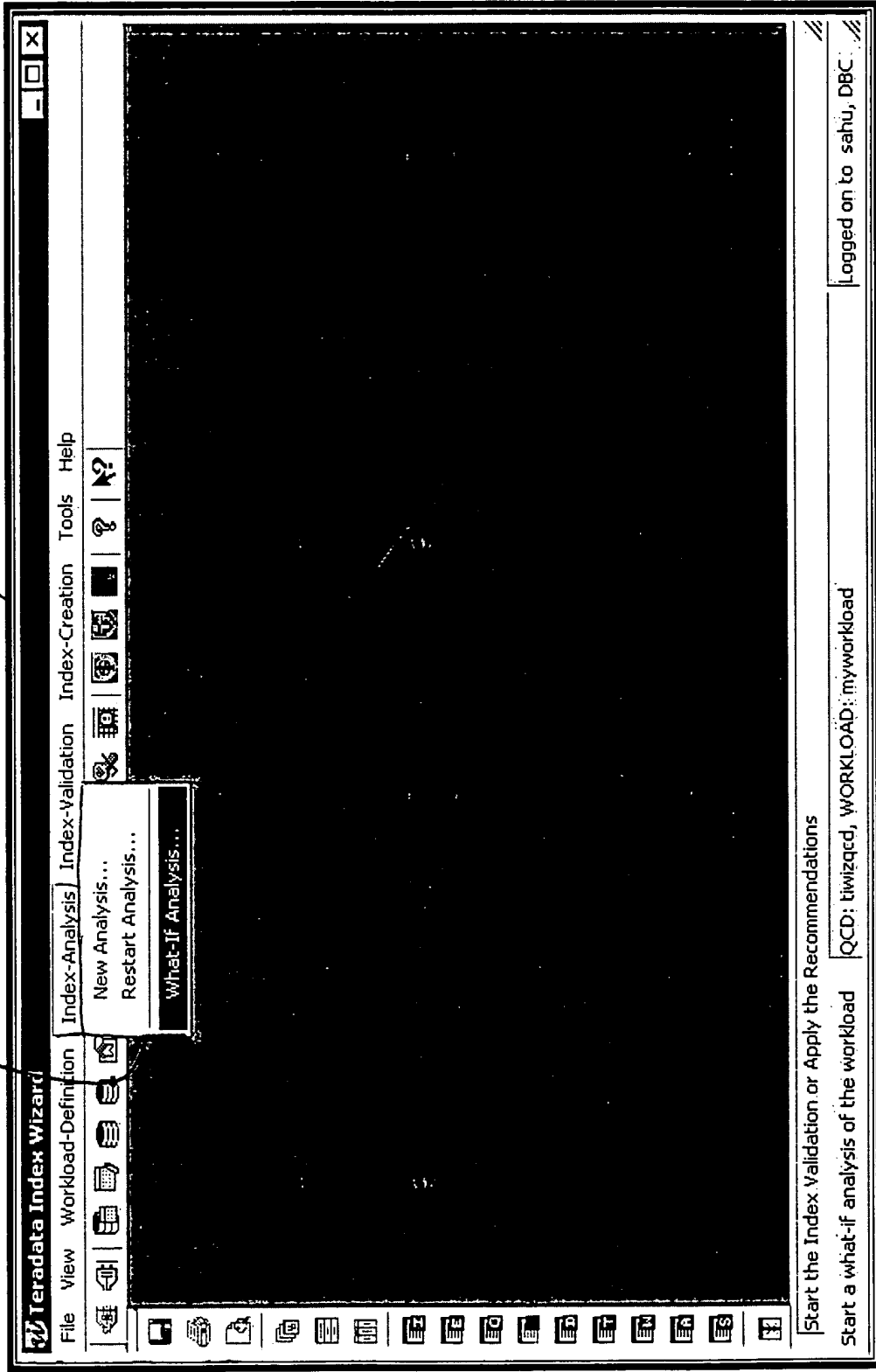


Fig. 16

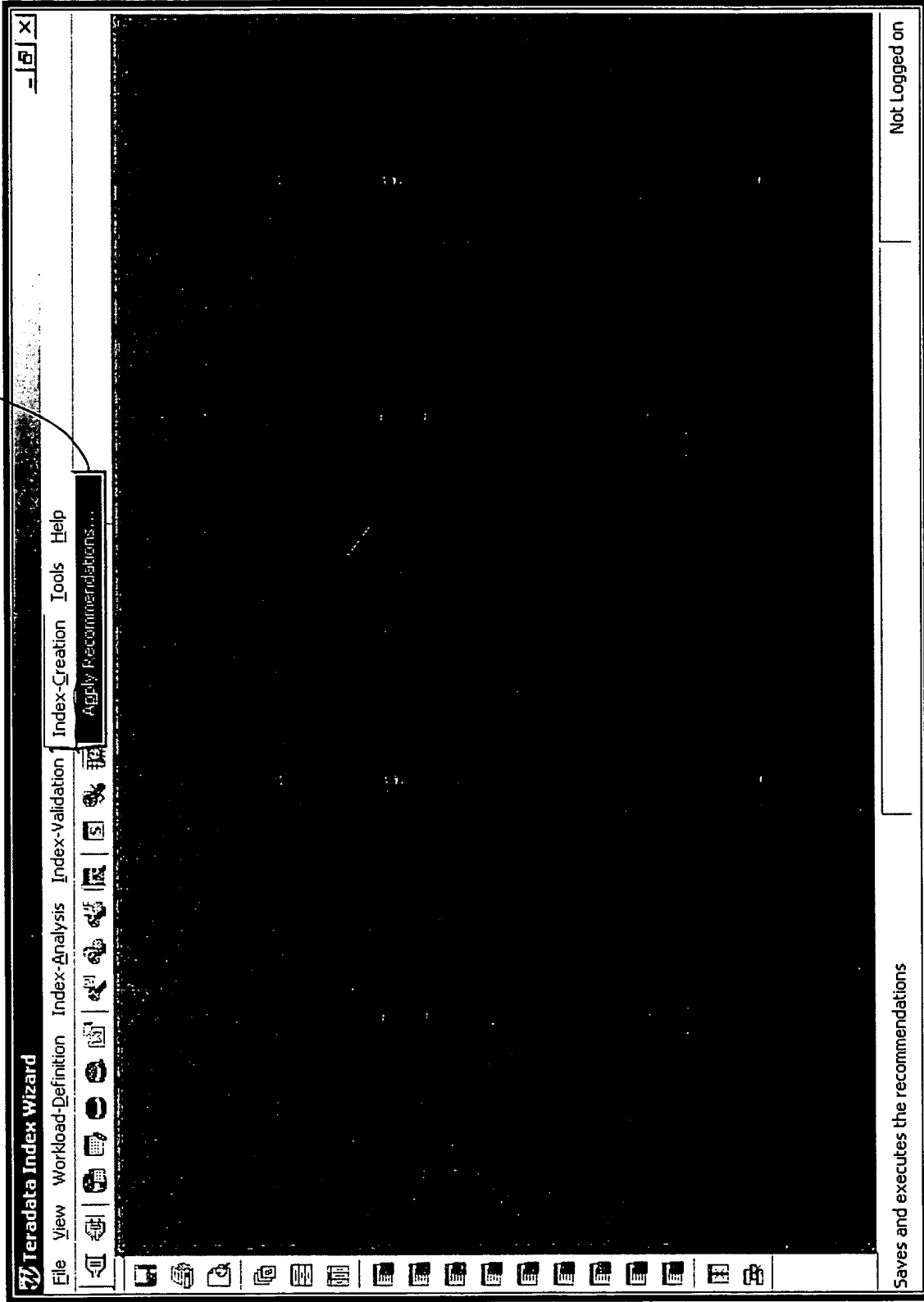
442 440 400

-|@|X|



Fig. 17

TOTOT" BEOZ/550
450
↓



Flh. 18

TOZTPT" SEDZ660

462

460

400



464

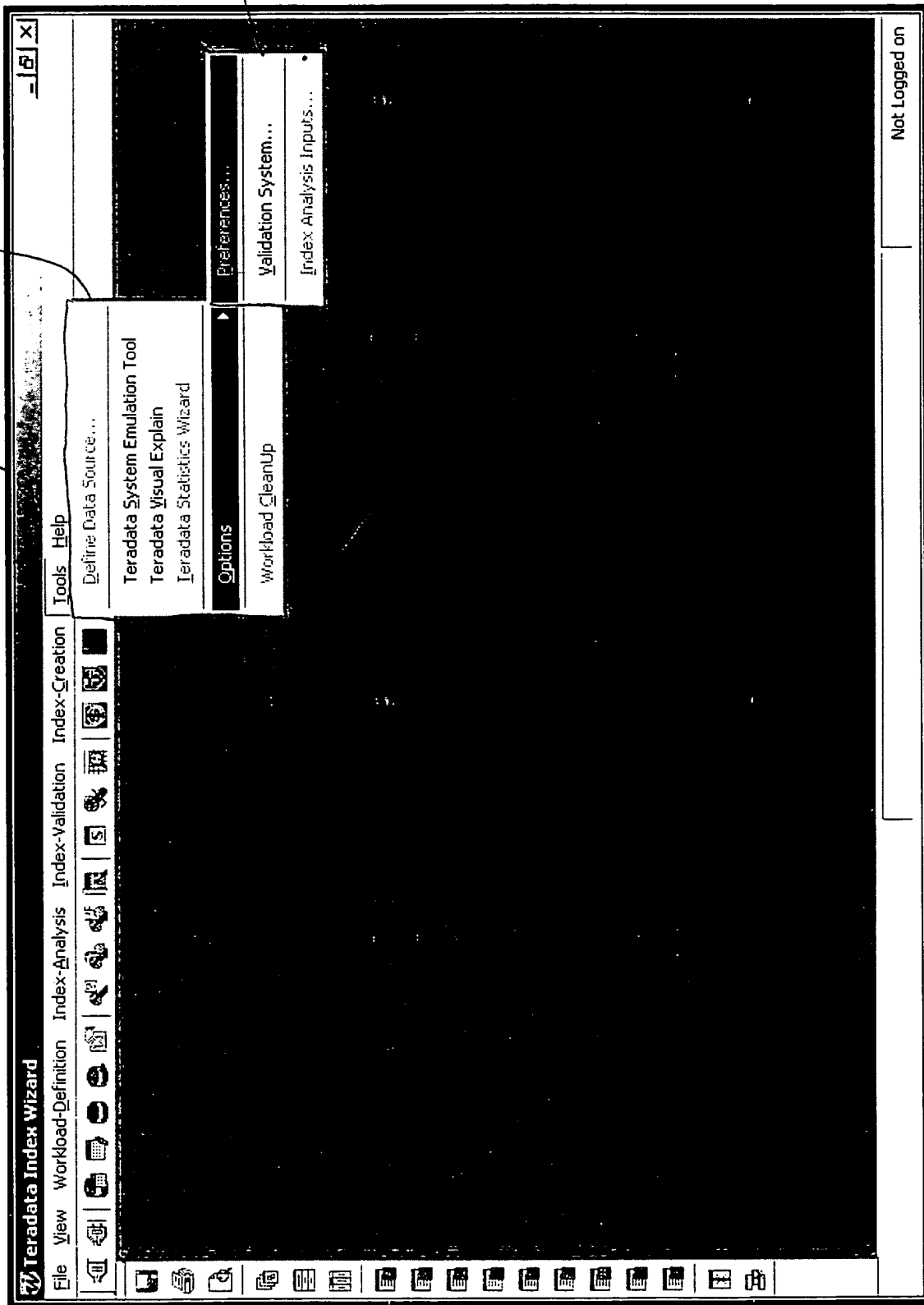


FIG. 19

Icon	Description
	To logon to the Teradata RDBMS server.
	To log off from the Teradata RDBMS server.
	To select the statements from the DBQL.
	To enter the SQL statements or select them from more than one file.
	To select the SQL statements from the QCD.
	To import a workload from a production system.
	To select an existing workload.
	To set/reset the index analysis parameters.
	To start index analysis.
	To perform "What-If" analysis
	To restart index analysis from a checkpoint.
	To display summary information.
	To validate the indexes.
	To schedule the creation of indexes.
	To view the help contents.
	To guide the user how to use help.

800 350
801 352
802 354
803
804
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809
810
811
812
813
814
815

Fig. 20

Define Workload

DBQL Search Criteria

User Name:

Account Name:

Start Time:

End Time:

Row Count:

I/O Count:

Frequency:

Statement Text:

500

503

502

Browse DBQL

DBQL Statements

Selected

Frequency

Statement Text

Workload Name:

Select All

Deselect All

OK

Cancel

Define Workload

? X

SQL Statements

S12

Frequency:

1

S13

Add

Browse...

Selected Statements

Workload Name:

MyWorkload

Frequency	Statement Text
1	sel * from dbc.dbcinfoTbl;

Remove

OK

Cancel

FIG. 22

Define Workload

QCD Statements

QCD Name: TIWizQCD

Query ID:

Query Tag:

Browse QCD

Selec	Query	Frequ	Statement Text
<input checked="" type="checkbox"/>	19	1	Insert explain into tiwizqcd sel * from query,rel
<input checked="" type="checkbox"/>	17	1	Insert explain into tiwizqcd sel * from query,...
<input type="checkbox"/>	15	1	sel * from query,relation where query.queryid =
<input checked="" type="checkbox"/>	13	1	sel * from query,relation ,workload ;;;
<input type="checkbox"/>	32	1	sel * from query,relation where relation.relation
<input checked="" type="checkbox"/>	11	1	sel * from query,relation where query.queryid =
<input checked="" type="checkbox"/>	9	1	sel * from query,relation ,workload where quer
<input type="checkbox"/>	30	1	sel * from query,...
<input type="checkbox"/>	28	1	Insert explain into TIWizQCD sel * from relation

Workload Name: MyWorkload

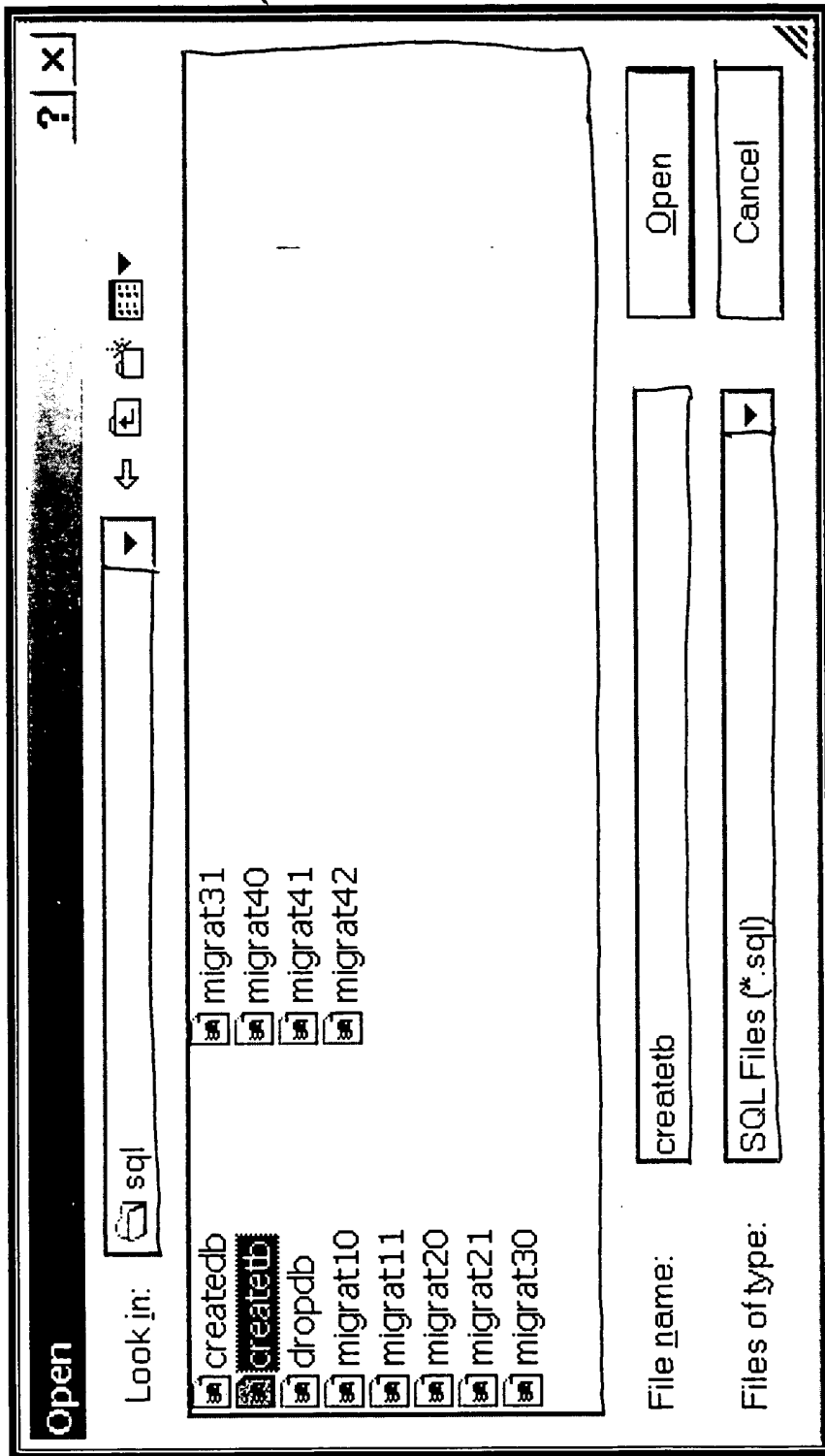
Select All

Deselect All

OK

Cancel

Fig. 23



-530

Define Workload

Select SQL Statements

Selected	Frequency	Statement Text
<input checked="" type="checkbox"/>	1	SELECT DISTINCT t2.t2_c2, t
<input type="checkbox"/>	1	SELECT NULLIF(t4.t4_c3,
<input checked="" type="checkbox"/>	1	DELETE FROM t4 WHERE NO
<input checked="" type="checkbox"/>	1	DELETE t1 WHERE NULLIF(t1
<input type="checkbox"/>	1	INSERT INTO t2 (t2.t2_c1, t2
<input checked="" type="checkbox"/>	1	UPDATE t1 FROM t5, t2, t3 SET

Workload Name:

MyWorkload

Select All

Deselect All

OK

Cancel

FIG. 25

Existing Workload

?

X

Workload Statements

QCD Name:

TIWizQCD

...

Workload Name:

MyWorkload

▼

State	Freq	Statement Text
1	1	sel * from query;;
2	1	sel * from relation;;

Workload Status

Recomm	Index Tag	Validated Sy	Validated Ti	Validated Q	Recom
2	myindextag	deepika	7:43.670000	tiwizqcd	NONE
1	MyIndexTag	deepika	7:43.670000	tiwizqcd	NONE
2	miindextag	deepika	7:43.670000	tiwizqcd	NONE

Modify Options

☐ Qcd Statements

☐ Query Text

Modify

OK

Cancel

550

552

554

556

Fig. 26

Existing Workload

?

X

Workload Statements

QCD Name: ...

Workload Name:

Selec	State	Frequ	Statement Text
<input checked="" type="checkbox"/>	1	1	sel * from query::
<input type="checkbox"/>	2	1	sel * from relation::

Workload Status

Recommend	Index Tag	Validated Sy	Validated Ti	Validated Qi	Recom
2	myindextag	deepika	7:43.670000	tiwizqcd	NONE
1	MyIndexTag	deepika	7:43.670000	tiwizqcd	NONE
2	miindextan	deenika	7:43.670000	tiwizqcd	NONE

Modify Options

☐ Qcd Statements

☐ Query Text

New Workload Name:

552A

558 }

550A

559

FIG. 27

Index Analysis Parameters [?] [X]

☐ Index Analysis Inputs

☒ Keep existing indexes

Maximum Columns per Index: 4

Maximum Indexes per Table: 16

Index Search Space: 256

Change Rate Threshold: 5

[OK] [Set Defaults] [Cancel]

- 560

Fig. 28

Index Analysis

Workload Statements

Statement Id	Frequency	Statement Text
3	1	sel * from query,relation where relation.relationid
1	1	sel * from query;
2	1	sel * from relation;

Select Tables

Selected	Database Name	Table Name	Access
<input checked="" type="checkbox"/>	tiwizqcd	QUERY	3
<input checked="" type="checkbox"/>	tiwizqcd	RELATION	2

Restart Parameters

Index Tag:

Checkpoint Frequency:

Save Options

☐ Save Recommendations in Files
 ☐ Save Execution Plans in Files

FIG. 29

Restart Index Analysis

Restart parameters

QCD Name: TWizQCD

Workload Name: MyWorkload

Index Tag: MyIndexTag

Save option

☒ Save Recommendations

☐ Save execution plans

OK Cancel

-580

Fig. 30

What-If Analysis

Workload Details

QCD Name:

liwizqcd

Workload Name:

MyWorkload

Index Tag:

MyIndextag

Statement

Frequency

Statement Text

1

1

sel * from query;

2

1

sel * from relation;

3

1

sel * from query.relation where relationid = query.

View Recom...

View Report...

Analysis

DDL Text:

CREATE INDEX index_5 (TableName) on Relation;

Selected DDL Statements:

Statement Text

COLLECT STATS Relation INDEX index_5

CREATE INDEX index_5 (TableName)

COLLECT STATS Relation INDEX index_5

CREATE INDEX index_5 (TableName)

Add ->

Remove

Remove All

Browse...

View Graph

Analyze

Conclusion : An overall improvement of 31.34 in the performance of the system

OK

Compare...

Cancel

594

596

590

602

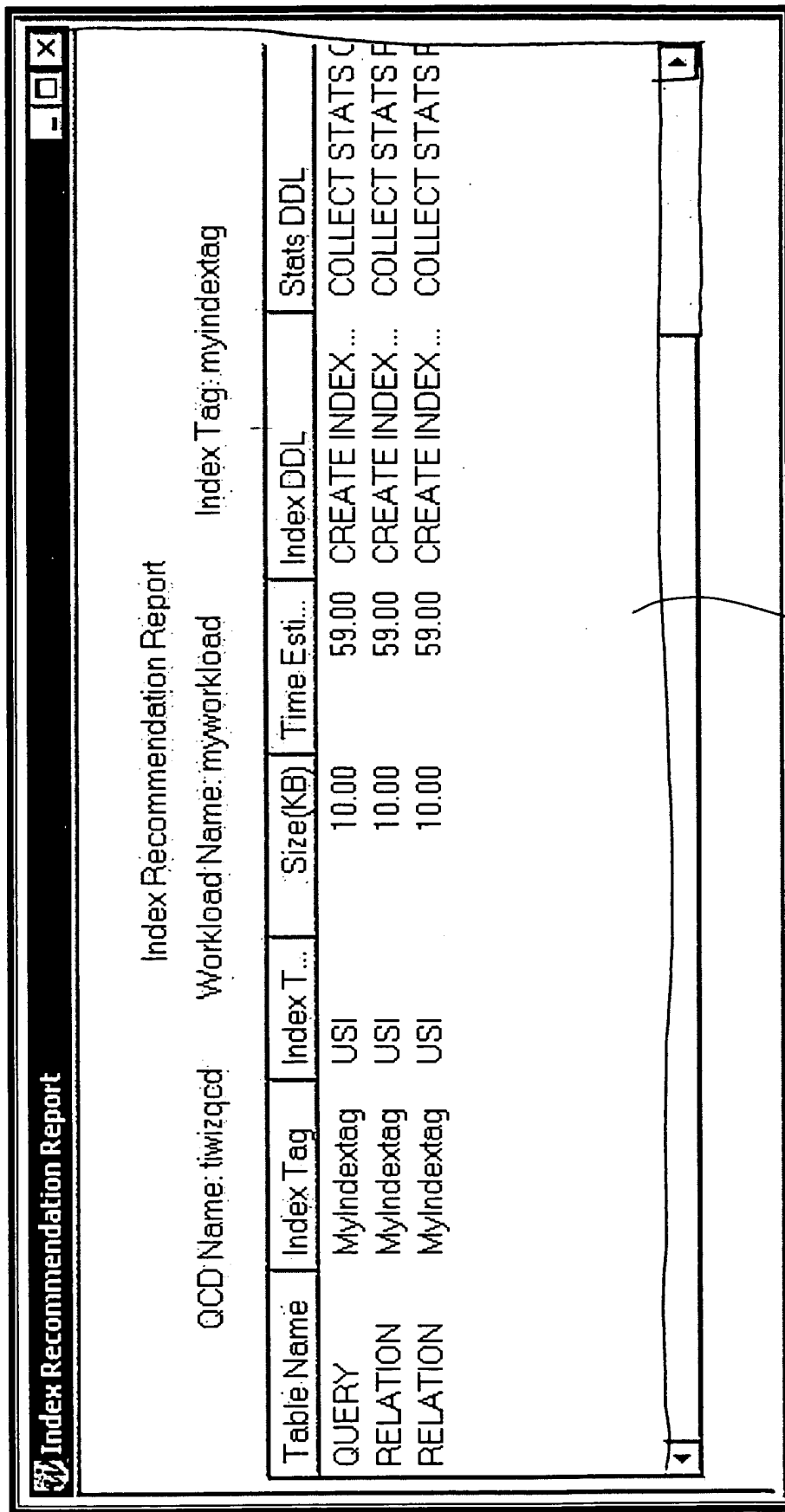
604

592

598

606

608



622

FIG. 32

Existing Indexes Report

-101 x1

Existing Indexes Report

QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

Table Name	Index Name	Index Type	Columns
QUERY	PK_QueryID	P	QueryID
RELATION	PK_RelationKey	P	RelationKey

FIG. 33

630 632

Query Cost Analysis Report

Query Cost Analysis Report

QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

Query Type	Cost(with existing i...	Cost(with recommended...	Percentage/Cha...	Query Text
SELECT	100.00	50.00	100.00	sel * from query.relation w
SELECT	100.00	50.00	100.00	sel * from query;
SELECT	100.00	50.00	100.00	sel * from relation;

Fig. 34

640 642

Update Cost Report

Update Cost Report

QCD Name: MyTextQCD Workload Name: MyWorkload Index Tag: Index1

Table Name	Indexes	Update Cost
No rows returned		

FIG. 35

650

652

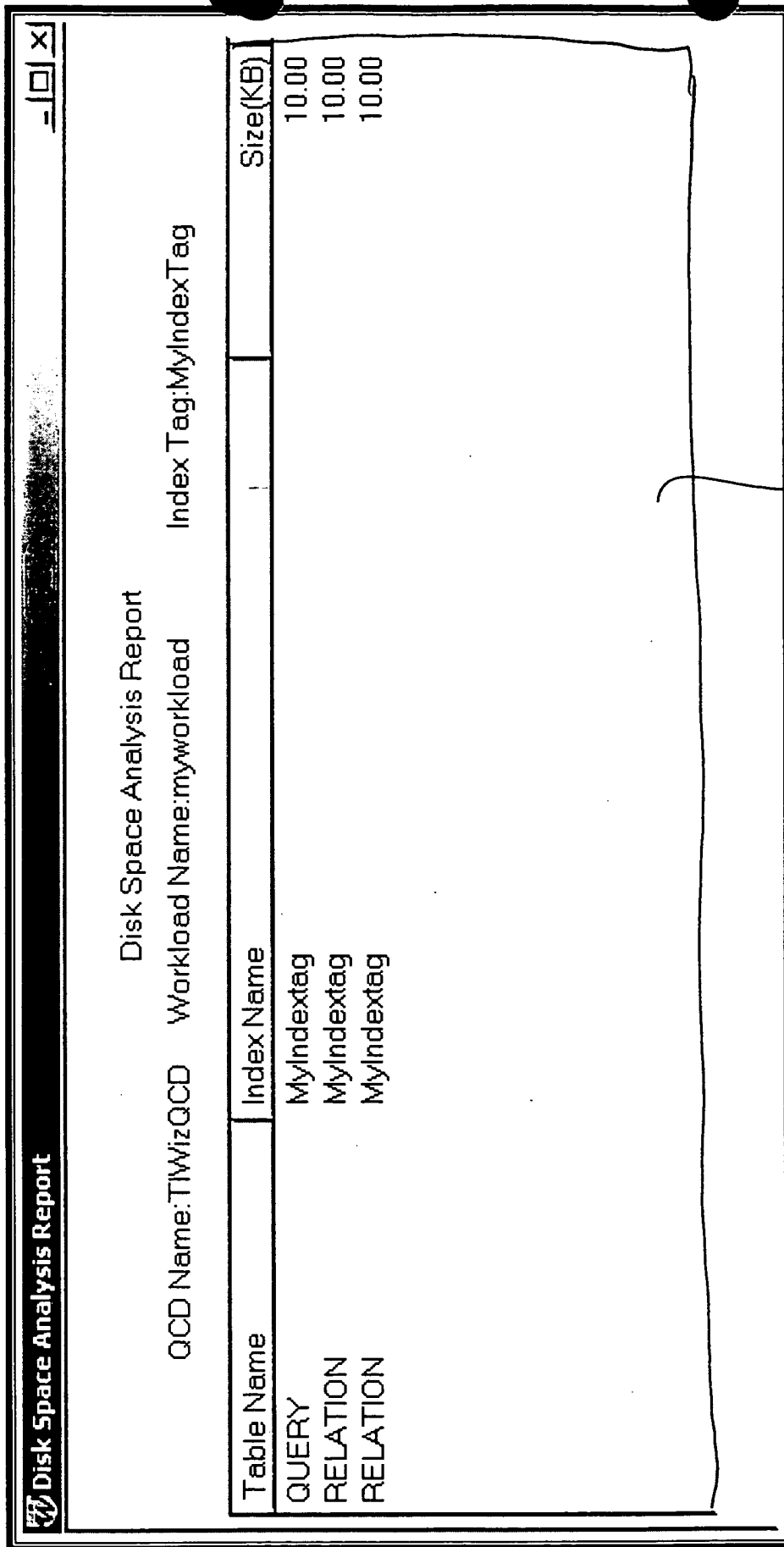


FIG. 36

Table Usage Report

Table Usage Report

QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

Table Name	Access Count	Statement Text
QUERY	1	sel * from query,relation where relation.relationid = query.queryid and query.qu
RELATION	1	sel * from query,relation where relation.relationid = query.queryid and query.qu
QUERY	1	sel * from query;
RELATION	1	sel * from relation;

F16, 37

670

672

Workload Analysis Report

Workload Analysis Report

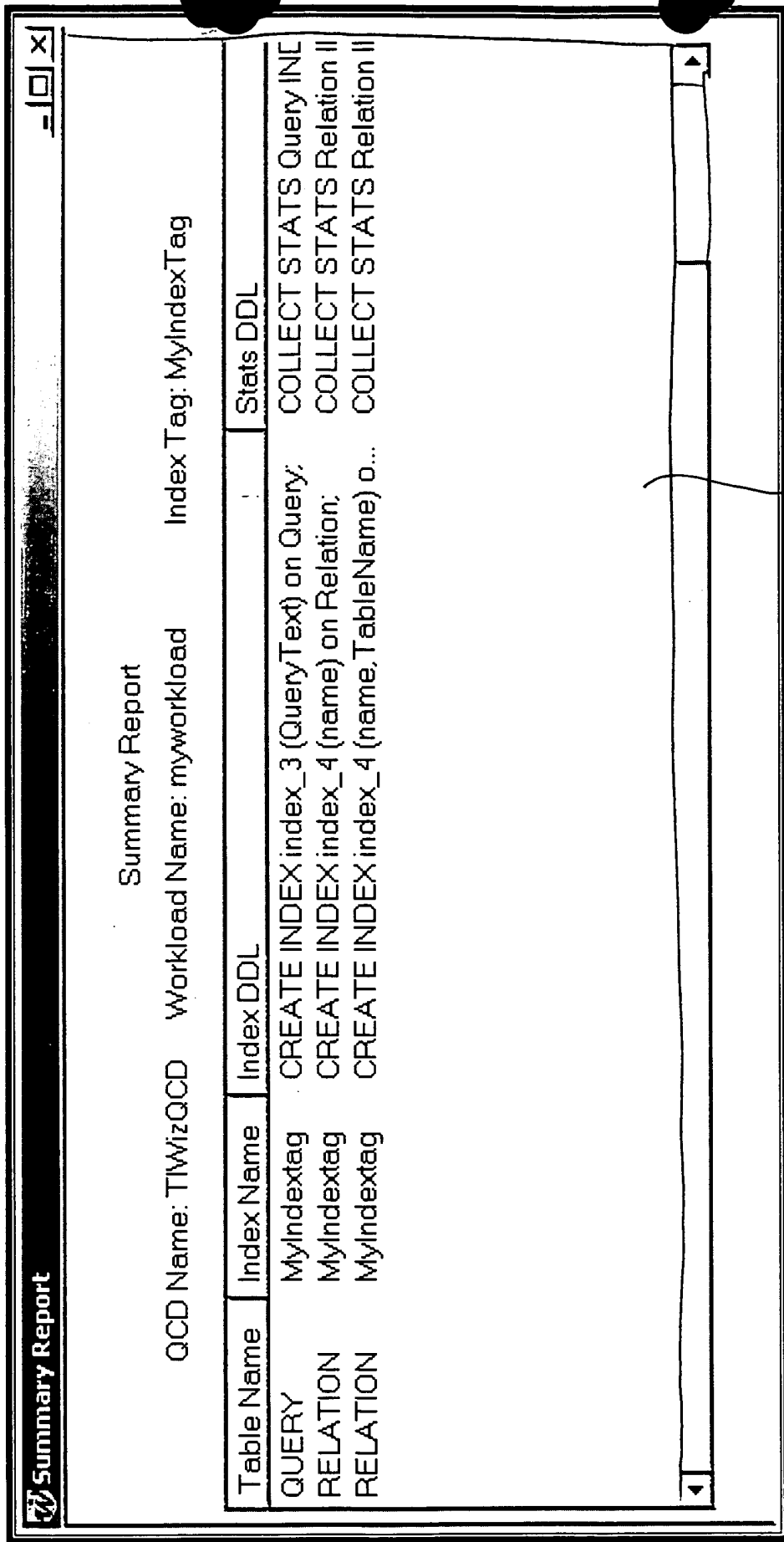
QCD Name: TIWizQCD Workload Name: myworkload Index Tag: MyIndexTag

State...	Cost	Relative...	Table Na...	Columns	Columns involve...	Statement T
SELE...	10...	3.70	RELATION	RelationKey, Cardinality, Geogl...	?	sel * from q
SELE...	10...	3.70	QUERY	QueryText, QUERYNAME, Que...	QueryID, QUER...	sel * from q
SELE...	10...	3.70	QUERY	UDB_KEY, QUERYNAME, Dat...	?	sel * from q
SELE...	10...	3.70	RELATION	SortInfo, VIEWNAME, UDB_KE...	?	sel * from re

Fig. 38

680

682



690 692

Fig. 39

Table Scan Report					
QCD Name: tiwizqcd		Workload Name: myworkload			
Owner	Table Name	Cardinality	AMPs Retrieve...	Geograph...	Statement Text
tiwizqcd	QUERY	45.00	All AMP Retrieve	built locally	sel * from query,relation where query.que
tiwizqcd	QUERY	45.00	All AMP Retrieve	built locally	sel * from query,relation ,workload where
tiwizqcd	QUERY	45.00	All AMP Retrieve	built locally	sel * from query,relation ,workload ;
tiwizqcd	RELATION	282.00	All AMP Retrieve	built locally	sel * from query,relation where query.que
tiwizqcd	RELATION	282.00	All AMP Retrieve	built locally	sel * from query,relation ,workload where
tiwizqcd	RELATION	282.00	All AMP Retrieve	built locally	sel * from query,relation ,workload ;
tiwizqcd	WORKLOAD	2.00	Single AMP Retr...	built locally	sel * from query,relation ,workload where
tiwizqcd	WORKLOAD	2.00	All AMP Retrieve	built locally	sel * from query,relation ,workload ;

Fig. 40

700

702

Workload Clean Up

?

X

Workload Statements

QCD Name:

TIWizQCD

...

Workload Name:

MyWorkload

State	Frequ	Statement Text
1	1	sel * from query,;
2	1	sel * from relation,;

Workload Status

Selec	Recommenc	Index Tag	Validated Sy	Validated Tii	Validated Q(
<input checked="" type="checkbox"/>	2	myindextag	deepika	7.43.670000	tiwizqcd
<input checked="" type="checkbox"/>	1	MyIndexTag	deepika	7.43.670000	tiwizqcd
<input checked="" type="checkbox"/>	2	myindextag	deepika	7.43.670000	tiwizqcd

Delete Options

☐ Delete Workload
 ☒ Delete Analysis

☐ Delete Plans

Delete

OK

Cancel

710

712

714

Fig. 41

Load Recommendations

?

X

☒ Load recommendations from QCD

☐ Load recommendations from file

TIWizQCD, MyWorkload

Browse...

OK

Cancel

730
732

734
FIG. 42

Load Recommendations Details

?

X

QCD Name: TIWizQCD

Workload Name: MyWorkload

Index Tag: myindextag

OK

Cancel

740

742

FIG. 43

Index Validation

Validate Indexes

Select indexes to be validated:

☒ Validate on another system

Select	Table	Index	Index	Columns	Index DDL
<input checked="" type="checkbox"/>	QUEF	MyIn		QueryText	CREATE INDEX index_3 (QueryText)
<input checked="" type="checkbox"/>	RELA	MyIn		name	CREATE INDEX index_4 (name)
<input checked="" type="checkbox"/>	RELA	MyIn		TableName	CREATE INDEX index_4 (name)

Select All

Deselect All

View DDL...

Validate

Validation Results

Table Name	Index Name	% Sample on which statistics were collected
QUERY		10
RELATION		10
RELATION		10

Conclusion : An overall improvement of 38.24 in the performance of the system

Compare Options:

Compare on same system

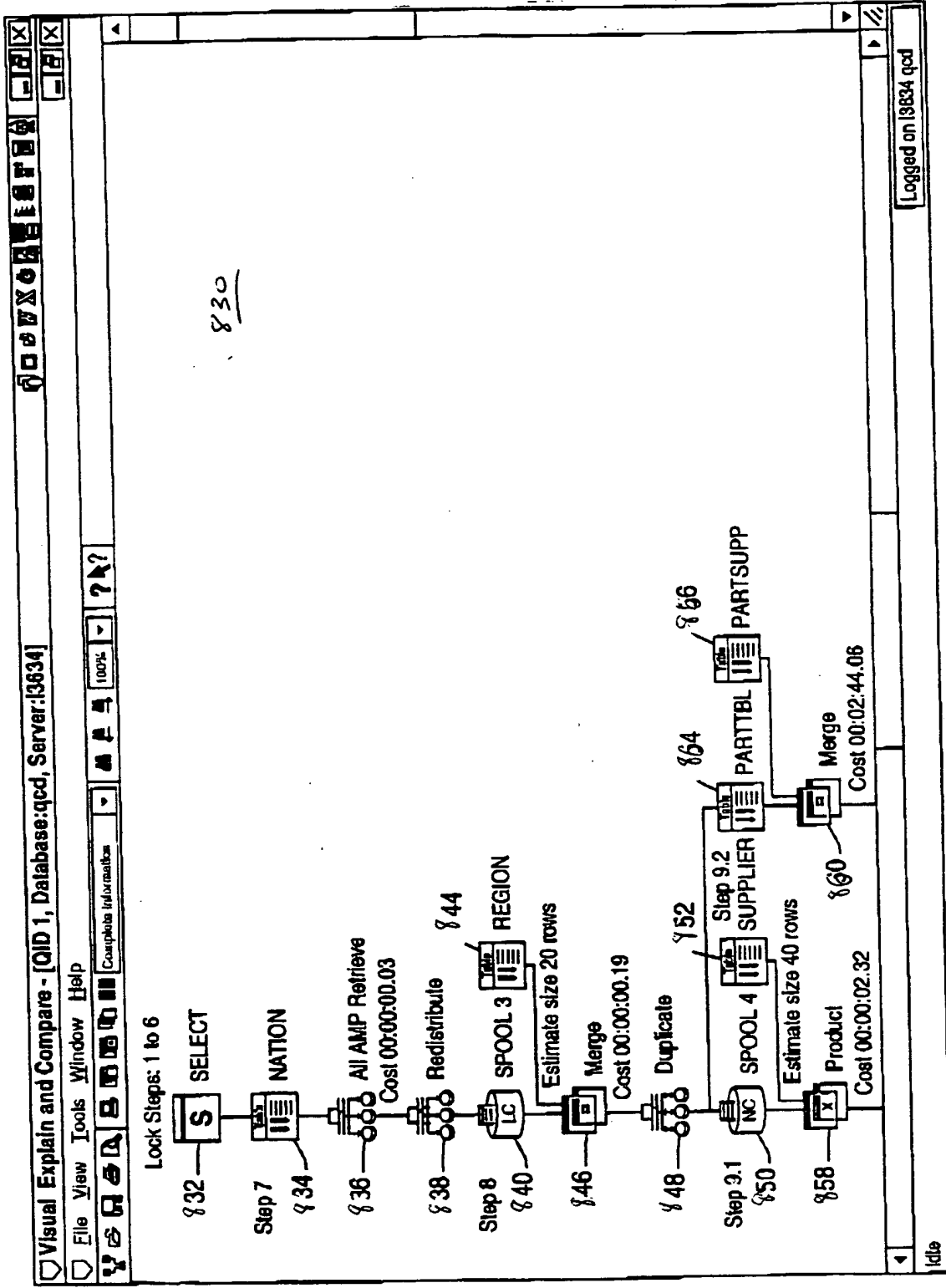
View Graph

OK

Compare...

Cancel

FIG. 45



Set Statistics Sample Size

Workload Definition Validation

Up To 1,000 rows:	50
1,000 To 10,000 rows:	30
10,000 To 100,000 rows:	20
100,000 To 1,000,000 rows:	10
1,000,000 To 10,000,000 rows:	5
10,000,000 To 100,000,000 rows:	1
Above 100,000,000 rows:	0.1

Set Defaults

OK Cancel Apply

950